

ABSTRACT

A process for producing a compound semiconductor single crystal includes bringing a molten raw material liquid into contact with a seed crystal accommodated in a lower section of a crucible and gradually cooling the molten raw material liquid in the crucible so that solidification of the raw material liquid proceeds upward, thereby growing a single crystal. The seed crystal has a diameter which is 0.50 to 0.96 times that of a constant-diameter portion of the single crystal. A diameter-increasing portion of the single crystal has a diameter increased during growth of the single crystal such that a peripheral wall of the diameter-increasing portion is inclined at  $5^{\circ}$  or more and less than  $35^{\circ}$  with respect to a crystal growth direction, followed by growth of a constant-diameter portion of the single crystal.